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ML researcher appointed to senior scientist

by Timothy R. Anderl, Materials and Manufacturing Directorate



Dr. James M. Larsen

WRIGHT-PATTERSON AIR FORCE BASE, Ohio — Dr. James M. Larsen, a scientist from the Air Force Research Laboratory's Materials and Manufacturing Directorate (ML), was recently appointed as senior scientist (ST) for structural materials life prediction. The ST position is one of the highest a civilian scientist can achieve and is comparable to the military rank of brigadier general.

According to Dr. Rollie Dutton, chief of the Metals, Ceramics and Nondestructive Evaluation Division's Metals Branch, the appointment is the result of Larsen's outstanding technical, professional and scientific achievements. Larsen's leadership and research, focusing on life prediction and durability of metallic and ceramic materials, directly supports the development and sustainment of materials for operational and future Air Force systems, Dutton added.

Larsen is the ML research leader for life prediction and durability of metallic and ceramic materials. In this capacity, Larsen has full responsibility and authority for the direction and productivity of his research team, which consists of approximately 45 government and contract scientists, engineers, technicians, and graduate and undergraduate students.

In-house research performed by Larsen's group addresses the full spectrum of life prediction problems of current and future aerospace materials, including those related to monolithic alloys, intermetallics, metal matrix composites and ceramic matrix composites. Larsen conceives and develops goals for the effort, and initiates, advocates and conducts research programs to cover a diverse range of scientific and technological areas.

In his personal research, Larsen identifies problems, performs experiments, analyzes and interprets data, and develops new analytical and computational models for life predictions. According to Dutton, his individual and group research efforts have had a decisive effect on development of the science and technology of mechanical behavior and life prediction of advanced aerospace materials. He has also served as a key member for various technical teams throughout ML, and the Propulsion and Air Vehicles Directorates, contributing his expertise in the areas of materials science, fracture mechanics, mechanical behavior and life prediction of metallic and ceramic matrix composites, and statistical and numerical analysis.

"His individual in-house research efforts and technical leadership have led to numerous successes for the directorate," Dutton said. "He has long been a critical participant in ML's contractual research program, has provided key leadership on numerous contracts, and has had a major influence on the research activities of colleagues in government and industry."

He also currently serves as a team leader for the Defense Advanced Research Project Agency's Materials Damage Prognosis Initiative, as a life prediction leader for a project with Australian Defense Science and Technology Organization, and as a National Research Council associateship advisor for the directorate. He is an adjunct professor in the Department of Materials Science and Engineering at The Ohio State University, and is a visiting scientist for the Department of Materials Science and Engineering at the University of Michigan, Ann Arbor.

Larsen earned his undergraduate and graduate degrees in Materials Science and Engineering from Vanderbilt University, Nashville, Tenn., and received a doctorate degree in Metallurgical Engineering and Materials Science from Carnegie Mellon University, Pittsburgh, Pa. He has received numerous performance and job-related awards and honors for his contributions to science and national defense, including an Air Force Science and Engineering Award; an Air Force Scientific Achievement Award; two Air Force Office of Scientific Research (AFOSR) Star Team Awards; and the Charles J. Cleary Award for Outstanding Research Scientist, ML's most prestigious scientific honor.

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Larsen is a member of several professional organizations where he is active on committees or holds fellow status, has contributed to a variety of technical publications, and he has served as the chairman, co-chairman, and co-organizer for international symposiums, conferences and workshops. In 1996, he was elected as an AFRL Fellow.

Formerly, Larsen was a principal investigator and team leader for the directorate's National Aero-Space Plane (NASP) Technology Maturation Program and NASP Institute of Composites. In 1996, he participated in AFOSR's Window on Europe program at the University of Birmingham, U.K., as a visiting research fellow for the Interdisciplinary Research Center in Materials for High Performance Applications.

"Dr. Larsen's appointment reflects his dedication to in-house research, his participation in key ML contractual research programs, his important technical leadership, and his reputation as an expert in materials science and engineering," Dutton said.

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